

Form PTO-1449 (REV. 7-80)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Atty. Docket No. 79132Y		Serial No. 08/471,890	
LIST OF PRIOR ART CITED BY APPLICANT (Use several sheets if necessary)				Applicant Donald R. Huffman, et al.			
				Filing Date June 7, 1995		Group 1103	
PATENT DOCUMENTS							
EXAMINER INITIAL*		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (if appropriate)
SH	AA	2,635,994	4/27/50	Tierman			
	AB	2,957,756	10/60	Bacon			
	AC	3,009,783	12/4/59	Sheer, et al.			
	AD	3,172,774	2/28/61	Diefendorf			
	AE	3,317,354	5/2/67	Darrow, et al.			
	AF	4,132,671	2/2/79	Deininger, et al.			
	AG	4,167,444	9/11/79	Schweiger			
	AH	4,435,375	3/6/84	Tamura, et al.			
	AI	4,435,378	3/6/84	Reck, et al.			
	AJ	4,767,608	8/30/88	Matsumoto, et al.			
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SH	AK	GB 2 101 983 A	2/23/83	United Kingdom			
	AL	2 160 696	6/20/90	Japan			
	AM	2 221 194	2/21/89	Japan			
	AN	1,587,000	8/23/90	Russia			
	AO	2,414,215	1/8/76	Germany			
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SH	AP	Aihara et al., Spherical Aromaticity of Buckminsterfullerene, <u>Bull. Chem. Soc. Jpn.</u> , 61, 1988, pp. 2657-2659					
	AR	Akhter, et al., The Structure of Hexane Soot II: Extraction Studies, <u>Applied Spectroscopy</u> , 39(1), 1985, pp. 154-167					
	AS	Almlof et al., Theoretical Methods and Results for Electronic Structure Calculations on Very Large Systems Carbon Clusters, <u>ACS Symposium Series</u> , 353, 1987, pp. 35-48					
	AT	Amato, A First Sighting of Buckyballs in the Wild, <u>Science</u> , 257(5067), 1992, p. 167					
	AU	Amic et al., On the Lack of Reactivity of Buckminsterfullerene: A Theoretical Study, <u>J. Chem. Soc. Perkin Trans.</u> , 1990, pp. 1595-1598					
	AV	Bacon, R., <u>J. Applied Physics</u> , 31(2), 1960, pp. 283-290					
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SH ↓	AA	4,915,977	4/10/90	Okamoto, et al.			
	AB	4,922,827	5/8/90	Remo			
	AC	5,114,477	5/19/92	Mort, et al.			
	AD	5,132,105	7/21/92	Remo			
	AE	5,234,474	6/19/91	Whewell			
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SH ↓	AP	Balasubramanian et al., Computer Generation of Spectra of Graphs: Applications to C ₆₀ Clusters and Other Systems, <u>Journal of Computational Chemistry</u> , 9(4), 1988, pp. 406-415					
	AR	Ballester et al., Atoms in Carbon Cages as a Source of Interstellar Diffuse Lines, <u>The Astrophysical Journal</u> , 356, 1990, pp. 507-512					
	AS	Blau et al., An Investigation of the Microfrictional Behavior of C ₆₀ Particle Layers on Aluminum, <u>Thin Solid Films</u> , 219, 1993, pp. 129-134					
	AT	Bloomfield et al., Negative and Positive Cluster Ions of Carbon and Silicon, <u>Chemical Physics Letters</u> , 121(1)(2), 1985, pp. 33-37					
	AU	Bochvar et al., Problems in the Structural Chemistry of Crystalline Carbon, <u>Sov. Sci. Rev. B. Chem.</u> , 9, 1987, pp. 483-527					
	AV	Brendsdal et al., Normal Coordinate Analysis of "Footballene" C ₆₀ , <u>Spectroscopy Letters</u> , 21(4), 1988, pp. 313-318					
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SH	AP	Brendsdal, Symmetry Coordinates of Molecular Vibrations of "Footballene" C ₆₀ , <u>Spectroscopy Letters</u> , 21(4), 1988, pp. 319-339					
SH	AR	Brendsdal et al., Kekule Structures of Footballene, <u>Journal of Molecular Structure (Theochem)</u> , 1989, pp. 55-66					
SH	AS	Brown, High Symmetries in Quantum Chemistry, <u>Chemical Physics Letters</u> , 136(2), 1987, pp. 128-133					
SH	AT	Buseck et al., Fullerenes from the Geological Environment, <u>Science</u> , 257(5067), 1992, pp. 215-217					
SH	AU	Bussoletti, Dusty Objects in the Universe, pp. 89-93					
SH	AV	Campbell et al., An Intense, Simple Carbon Cluster Source, <u>J. Chem. Phys.</u> , 93(9), 1990, pp. 6900-6907					
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SH	AR	Ceulemans et al., The Jahn-Teller Instability of Fivefold Degenerate States in Icosahedral Molecules, <u>J. Chem. Phys.</u> , 93(2), 1990, pp. 1221-1234					
SH	AS	Coulantbeau et al., Calculs de Proprietes Electroniques et des Frequences Normales de Vibration D'Agregats Carbones Formant Des Polyedres Reguliers et Semi-Reguliers, <u>Journal de chimie physique</u> , 84, 1987, pp. 7-8					
SH	AT	Cox et al., C ₆₀ La: A Deflated Soccer Ball?, <u>J. Am. Chem. Soc.</u> , 108, 1986, pp. 2457-2458					
SH	AU	Cox et al., Carbon Clusters Revisited: The "Special" Behavior of C ₆₀ and Large Carbon Clusters, <u>J. Chem. Phys.</u> , 88(3), 1988, pp. 1588-6907					
SH	AV	Creasy, Some Model Calculations of Carbon Cluster Growth Kinetics, <u>J. Chem. Phys.</u> , 92(12), 1990, pp. 7223-7233					
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SH	AR	Creasy et al., Formation of High Mass Carbon Cluster Ions from Laser Ablation of Polymers and Thin Carbon Films, <u>J. Chem. Phys.</u> , 92(4), 1990, pp. 2269-2277					
SH	AS	Curl et al., Probing C ₆₀ , <u>Science</u> , 242, 1988, pp. 1017-1022					
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	AU	Cyvin et al., Molecular Vibrations of Footballene, <u>Chemical Physics Letters</u> , 143(4), 1988, pp. 377-380					
	AV	Daniel, Jr., Studies Toward a Convergent Synthesis of C ₆₀ , <u>Dissertation Abstracts International</u> , 49(5), 1988, p. 1706-B					
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SH	AR	Dietz et al., Laser Production of Supersonic Metal Cluster Beams, <u>J. Chem. Phys.</u> , 74(1), 1981, pp. 6511-6512					
SH	AS	Disch et al., On Symmetrical Clusters of Carbon Atoms: C ₆₀ , <u>Chemical Physics Letters</u> , 125(5)(6), 1986, pp. 465-466					
SH	AT	Ebbesen, et al., Origins of Fullerenes in Rocks, <u>Science</u> , 268, 1995, pp. 1634-1635					
SH	AU	Elser et al., Magnetic Behavior of Icosahedral C ₆₀ , <u>Physical Review of General Physics Third Series</u> , 36(10), 1987, pp. 4579-4585					
SH	AV	Elser et al., Icosahedral C ₆₀ : An Aromatic Molecule with a Vanishingly Small Ring Current Magnetic Susceptibility, <u>Nature</u> , 325, 1987, pp. 792-794					
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SH	AP	Feld et al., Carbon Cluster Emission from Polymers Under Kilolectronvolt and Magaelectronvolt Ion Bombardment, <u>J. Phys. Chem.</u> , 94, 1990, pp. 4595-4599					
SH	AR	Feng et al., Quantum-Chemical Investigation of Buckminsterfullerene and Related Carbon Clusters (I): The Electronic Structure and UV Spectra of Buckminsterfullerene and Other C ₆₀ Cages, <u>International Journal of Quantum Chemistry</u> , XXXVII, 1990, pp. 509-607					
SH	AS	Fowler et al., π -Systems in Three Dimensions, <u>Chemical Physics Letters</u> , 127(1), 1986, pp. 78-83					
SH	AT	Fowler, Carbon Cylinders: A Class of Closed-shell Clusters, <u>J. Chem. Soc. Faraday Trans.</u> , 86(2), 1990, pp. 2073-2077					
SH	AU	Fowler, How Unusual is C ₆₀ ? Magic Numbers for Carbon Clusters, <u>Chemical Physics Letters</u> , 131(6), 1986, pp. 444-450					
SH	AV	Fowler et al., Systematics of Bonding in Non-Icosahedral Carbon Clusters, <u>Theor. Chim. Acta</u> , 73, 1988, pp. 1-26					
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SH	AP	Fowler et al., Electric and Magnetic Properties of the Aromatic Sixty-Carbon Cage, <u>Chemical Physical Letters</u> , 165(1), 1990, pp. 79-86					
SH	AR	Fowler et al., The Leapfrog Principle: A Rule for Electron Counts of Carbon Clusters, <u>J. Chem. Soc., Chem. Commun.</u> , 1987, pp. 1403-1405					
SH	AS	Gerhardt et al., Polyhedral Carbon Ions in Hydrocarbon Flames, <u>Chemical Physical Letters</u> , 137(4), 1987, pp. 306-310					
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SH	AU	Gerhardt et al., Large Ionic Species in Sooting Acetylene and Benzene Flames, AGARD Proc. No. 422, Combustion and Fuels in Gas Turbine Origins, 1988, p. 22-1-22-11					
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SH	AR	Geusic et al., Photodissociation of Carbon Cluster Cations, <u>J. Chem. Phys.</u> , 86(7), 1987, pp. 3862-3869					
SH	AS	Haddon, Measure of Nonplanarity in Conjugated Organic Molecules: Which Structurally Characterized Molecule Displays the Highest Degree of Pyramidalization?, <u>J. Am. Chem. Soc.</u> , 112, 1990, pp. 3385-3389					
SH	AT	Haddon et al., Electronic Structure and Bonding in Icosahedral C ₆₀ , <u>Chemical Physics Letters</u> , 125(5)(6), 1986, pp. 459-464					
SH	AU	Haddon et al., Icosahedral C ₆₀ Revisited: An Aromatic Molecule with a Vanishingly Small Ring Current Magnetic Susceptibility, <u>Chemical Physics Letters</u> , 169(4), 1990, pp. 362-364					
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SH	AP	Hahn et al., Magic Numbers in C_{2n} and C_n Abundance Distributions, <u>Chemical Physics Letters</u> , 130(1)(1), 1986, pp. 12-16					
SH	AR	Hale, Discrete-Variational-X Alpha Electronic Structure Studies of the Spherical C_{60} Cluster: Prediction of Ionization Potential and Electronic Transition Energy, <u>J. Am. Chem. Soc.</u> , 108, 1986, pp. 6087-6088					
SH	AS	Harano et al., Decomposition of Gaseous Hydrocarbons in a Laser-induced Plasma as a Novel Carbonaceous Source for Cluster Formation, <u>Chemical Physics Letters</u> , 172(3)(4), 1990, pp. 219-223					
SH	AT	Hargittai et al., Quasicrystals, Networks and Molecules of Fivefold Symmetry, pp. 239-287					
SH	AU	Harter et al., Rovibrational Spectral Fine Structure of Icosahedral Molecules, <u>Chemical Physics Letters</u> , 132(4)(5), 1986, pp. 387-392					
SH	AV	Harter et al., Rotation-Vibration Spectra of Icosahedral Molecules. I. Icosahedral Symmetry Analysis and Fine Structure, <u>J. Chem. Phys.</u> 90(9), 1989, pp. 4727-4743					
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SH	AR	Haymet, C ₁₂₀ and C ₆₀ : Archimedean Solids Constructed from sp ³ Hybridized Carbon Atoms, <u>Chemical Physics Letters</u> , 122(5), 1985, pp. 421-424					
SH	AS	Haymet, Footballene: A Theoretical Prediction for the Stable, Truncated Icosahedral Molecule C ₆₀ , <u>J. Am. Chem. Soc.</u> , 108, 1986, pp. 319-321					
SH	AT	Heath, The Formation of Long Carbon Chain Molecules during Laser Vaporization of Graphite, <u>J. Am. Chem. Soc.</u> , 109, 1987, pp. 359-363					
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Form PTO-1449 (REV. 7-80)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Atty. Docket No. 79132Y		Serial No. 08/471,890	
LIST OF PRIOR ART CITED BY APPLICANT (Use several sheets if necessary)				Applicant Donald R. Huffman, et al.			
				Filing Date June 7, 1995		Group 1103	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL*		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (if appropriate)
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SH	AP	Randic et al., On the Aromatic Stability of a Conjugated C ₆₀ Cluster, <u>Croatia Chemical ACTA</u> , 60(4), 1987, pp. 595-604					
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EXAMINER				DATE CONSIDERED			
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Form PTO-1449 (REV. 7-90)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Atty. Docket No. 7913ZY		Serial No. 08/471,890	
LIST OF PRIOR ART CITED BY APPLICANT (Use several sheets if necessary)				Applicant Donald R. Huffman, et al.			
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LIST OF PRIOR ART CITED BY APPLICANT (Use several sheets if necessary)				Applicant Donald R. Huffman, et al.			
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LIST OF PRIOR ART CITED BY APPLICANT (Use several sheets if necessary)				Applicant Donald R. Huffman, et al.			
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SH	AR	Spitsyn, B.V., et al., Vapor Growth of Diamond on Diamond and Other Surfaces, <u>Journal of Crystal Growth</u> , 52, 1981, pp. 219-226					
SH	AS	Stankevich et al., The Structural Chemistry of Crystalline Carbon: Geometry, Stability, and Electronic Spectrum, <u>Russian Chemical Reviews</u> , 53(7), 1984, pp. 640-655					
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SH	AS	Weeks et al., Rotation-Vibration Spectra of Icosahedral Molecules. II. Icosahedral Symmetry, Vibrational Eigenfrequencies, and Normal Modes of Buckminsterfullerene, <u>J. Chem. Phys.</u> , 90(9), 1989, pp. 4744-4771					
SH	AT	Weiss et al., Photophysics of Metal Complexes of Spheroidal Carbon Shells, <u>J. Am. Chem. Soc.</u> , 110, 1988, pp. 4464-4465					
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SH	AP	Williams, Close Packing of Spheres, <u>J. Chem. Phys.</u> 87(7), 1987, pp. 4206-4211					
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SH	AS	Yang et al., Ups of buckminsterfullerene and other Large clusters of Carbon, <u>Chemical Physics Letters</u> , 139(3)(4), 1987, pp. 233-238					
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INFORMATION DISCLOSURE CITATION
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Docket Number (Optional)
7913ZY

Application Number
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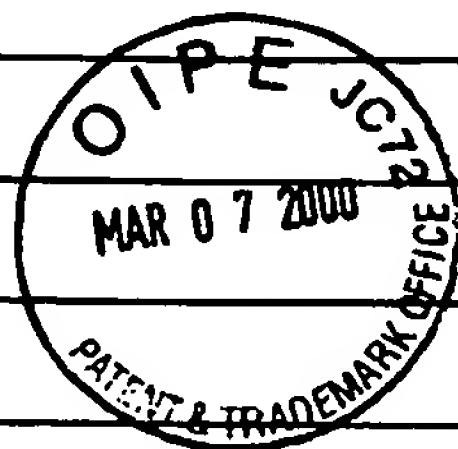
Applicant(s)
Donald R. Huffman, et al.

Filing Date
June 7, 1995

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U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

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							YES	NO

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